SAIC Experimental CMMS

CMMS Working Group Meeting

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Review of Contributions

- Mission Space Capture

  – Captured Doctrine from JP 3-56.1, Joint Air Operations Planning

- Paradigm Plus

  – Extracted Information From Data Base with Script

  – Imported Sample NSS Files

- Web Design

  – Sample User Interfaces

  – Contents of CMMS, Links to Related Information

- CMMS Concept of Operations

Lessons Learned - Mission Space Capture

- Doctrine does not Contain a Complete Mission Space Description (Go see a Subject Matter Expert)
  - Doctrine Only Describes Portion of Mission Space
  - Capture from Doctrine Alone is Inadequate
- Keep User in Mind When Creating Complex Diagrams
  - A User Shouldn't Get Lost on a Self-Guided Tour
- Tradeoff is Between Capturing a Complex Process, Making it Simple to Navigate, Retaining Sufficient Detail to Satisfy Simulation Developer, ...

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Lessons Learned - Contributed Mission Spaces

- Contributions are not Controlled by CMMS Administrator, They are Matched to Goals of Sponsor
    - Level of Detail, Extent of Capture, Platform, Methodology, ...
- Will Mission Spaces be Merged at the "Edges"? (Who Will do This?)
- Prepare for Conflicting Authoritative Sources (Store Multiple Versions)
- No Two People Will Capture it the Same Way (Store Multiple Versions)
- Promulgated Guidelines for Mission Space Capture Will be Important to Assimilation and Management of Acquired Knowledge
- Boundary Between Simulation Independent and Simulation Dependent Capture May not be Well Defined (Request it From Developers)
- Should have Inclusive Rather than Exclusive Policy
    (Don't spend time trimming details from submitted Mission Spaces)
- Challenge Will be to Help User Navigate Whatever has been Submitted

3 Sample Pages from NSS Files

Lessons Learned - User Interface

- Easy to Imagine Links/Pathways Through the Data, Harder to Create Them
- Links from UJTL to the Mission Spaces Should be Through Operations Templates
  - Sample Joint Air Operations Planning - No Direct Link to UJTL
  - Who will Create all the Required Links and Establish Relationships?
    - e.g. Organizations Related to Tasks
    - e.g. Selection from Among Multiple Entry Points into Mission Spaces
- Real Entry Point into Mission Spaces for Simulation Developer will be Through Operations Templates
  - UJTL Tasks are Context Independent, Mission Spaces Provide That Context
- Expect to Have Different Interfaces to Suit Different User Communities
  - Services Do Not Think Alike, Do Not All Speak UJTL Yet
  - When Warfighters are Acquisition Program Managers, They Need a Different Interface

Potential List of Operations Templates

<u>Joint Operations</u>.

Amphibious Operations

Interdiction Operations.

Maritime Operations (Air).

Special Operations

Riverine Operations..

Military Operations Other Than War .

Ballistic Missile Defense..

Fire Support.

Rear Area Operations

Nuclear, Biological, and Chemical.

Nuclear Operations ..

C3CM in Military Operations.

Space Operations .

Barriers, Obstacles, and Mine Warfare

Integrated Strategic Defense

Theater Airlift Operations

Forcible Entry Operations

Search and Rescue.

Electronic Warfare

Airspace Control in a Combat Zone.

Psychological Operations

Operations Security

Reconnaissance, Surveillance, and Target
    Acquisition Support

Tactical Command and Control .

Civil Affairs.

Operational Deception.

Meteorological and Oceanographic .

Lessons Learned - Web Issues

- Web Technology is a Powerful Tool, But the Technology Limits Potential Approaches (Not Necessarily Bad)
  - What You Want to Achieve Is Not Always What You Will Get
    - Understanding What Happens on Client Side vs Server Side
    - Emerging Web Capabilities are Promising
- Allows Flexibility to Piece Together Solutions to Parts of the Problem
  - Some Things Java, Some CGI, Some HTML, Some Links to External Sources …
- Good Way to Keep Community Involved
  - Products are Widely Available
  - Latest Version Always Available on Web

Web Page Design Demonstration

- Access Designed for Both New and Experienced Users
  - Overviews and Introductory Pages
  - Browsing Access for Exploring
  - Direct Access to Core Contents
    - UJTL Tasks
    - UJTL Operations Templates
    - Warfare Operations
    - Mission Spaces Captured
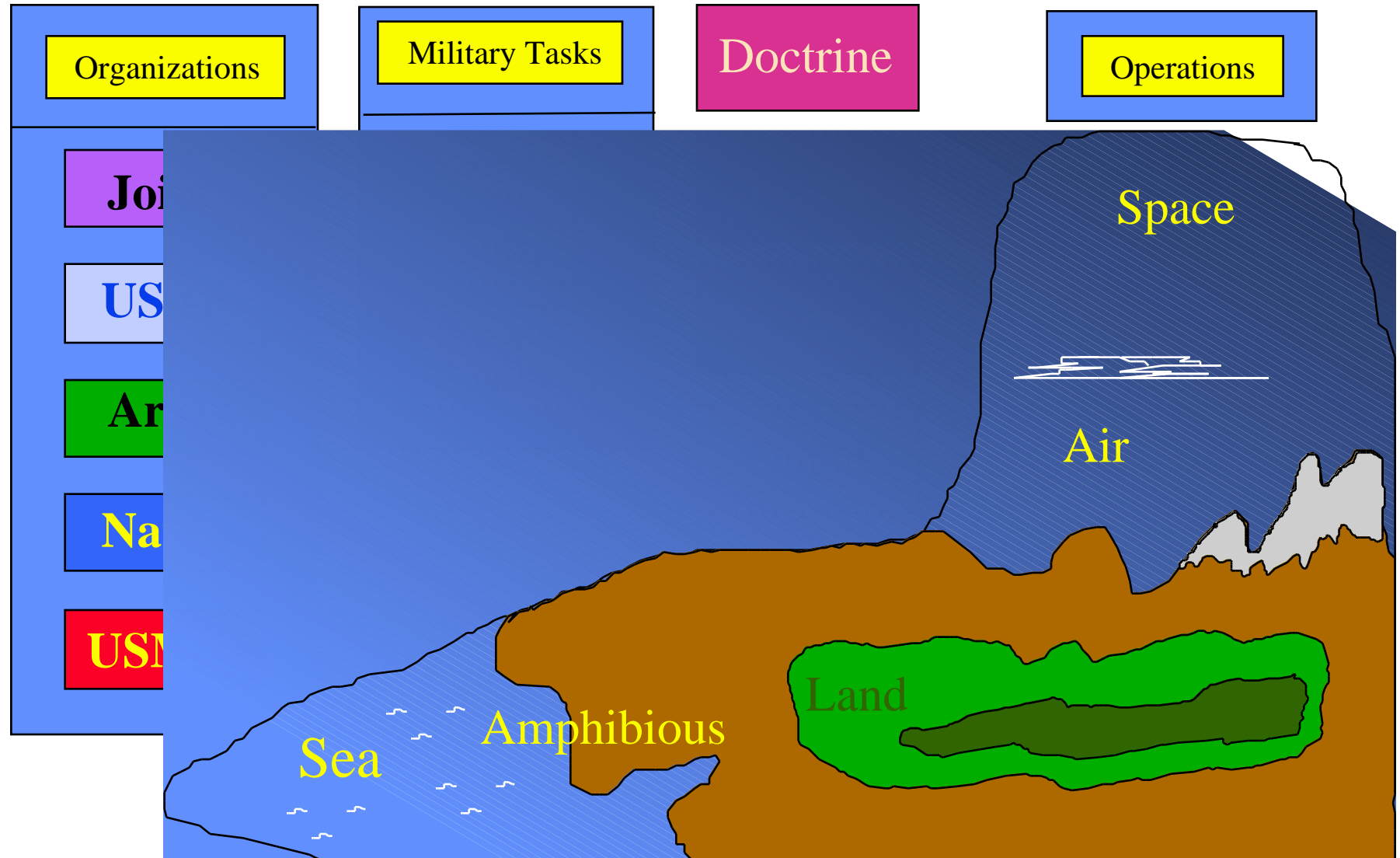   - Link to Doctrine
    - Military Organizations

The Conceptual Model of the Mission Space

A Simulation Independent Capture of the Military Operations Mission Space
to Guide Simulation Developers and Support Warfighters

Organizations

Military Tasks

Doctrine

Operations

Joi

US

Ar

Na

USM

Space

Air

Sea

Amphibious

Land

Paradigm Plus Demonstration

- Joint Air Operations Planning Mission Space Captured

    - Sample Diagrams - Schlaer-Mellor Method

    - Child Diagrams Expanding Process into Sub-Elements

- Script Designed to Extract Inputs, Processes, and Outputs and List in Format Recommended in DMSO Briefing

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Lessons Learned - Paradigm Plus

- Recommended as One of the Tools for Mission Space Capture
  - Offers Several Methods, In Wide Use, Enterprise Model, ...
  - Future Versions Will Allow Remote Script Execution, Tie to OODB
- Script Suited for Extracting Data, Report Generating, and Special Purpose Translators
  - Extract data to intermediate file and then do what you want with it
- Paradigm Plus Cross-Platform Data Transfer Worked for NSS Files
  - Helps to Have Compatible Hardware
  - Developer Must Export in CDIF Format, Convert Across Platforms
- Scripting Process Can Not (Yet) Create New Diagrams (Limited to existing methodologies)
- Script Powerful, but Awkward on Large Projects
- Open Access to Data, Works as Advertised (So Far)

Recommendations for Future Activities

- Pursue Web Sample User Interface with Potential User Community
    - Gather Comments Via e-mail or Similar System
    - Inspires Contributions of Information & Enhancements
- Describe Expectations at the Next Level of Detail
    - Describe What You Want to See When You Click on ...
    - Describe What You Want to Learn and How You Want to Use it ...
- Make Sure CMMS is not Locked into a Particular CASE Tool or Methodology
- Identify Key Dependencies and Stay Involved
    - Operations Templates, Mission Space Capture, CASE Technology, Web Technology, ...
    - Simulation Development Community (WarSim 2000, JSIMS, JWARS, NSS, NASM, STOW, ...)

Recommendations for Future Activities
Continued

- Serve Primary Users First - Simulation Developers

    - Many Features Will Satisfy Others, They'll Understand it Was First Built for Someone Else

    - Pursue Time-Phased Implementation to Maintain Focus

- Look Beyond the Prototype

- Consider Wargaming the Process

    - Wargaming is Good for Understanding Processes

    - Helps to Appreciate the Problem at a Fundamental Level

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